AMENDMENTS TO THE CLAIMS

The following listing of claims replaces all prior listings, and all prior versions, of claims in the application.

LISTING OF CLAIMS:

1. – 2. (Cancelled).

3. (Currently Amended) ~~An~~ The inspection apparatus using nuclear magnetic resonance ~~comprising a controller controlling a pulse sequence applying a radiofrequency magnetic field and a magnetic field gradient to a living body placed in a static magnetic field to detect a nuclear magnetic resonance signal produced from said living body and an arithmetic processor using said detected nuclear magnetic resonance signal to perform image reconstruction of an imaging section, wherein said controller performs (1) in the state that said living body stops exhalation or inspiration, control of a first pulse sequence detecting said nuclear magnetic resonance signal; and (2) in the state that said living body breathes, control of executing once said first pulse sequence and in the state that said living body breathes, of repeating a second pulse sequence detecting said nuclear magnetic resonance signal at predetermined repetition time intervals, said arithmetic processor performs (a) arithmetic processing of acquiring a reference projection of said imaging section from said nuclear magnetic resonance signal detected in said first pulse sequence of said (1); (b) arithmetic processing of acquiring a projection of said imaging section from said nuclear magnetic resonance signal detected in said first pulse sequence of said (2); and (c) arithmetic processing of determining a similarity coefficient between said projection and said reference projection, and said controller performs (3) control of monitoring respiratory motion of said living body based on said similarity coefficient to collect said~~

~~nuclear magnetic resonance signals used for said image reconstruction in said second pulse sequence, said similarity coefficient being scalar; and (4) control of repeating said (2) to said (3);~~

~~wherein said projection is one-dimensional, and said reference projection is one-dimensional, and~~

~~wherein an average of projections of the imaging section acquired from the nuclear magnetic resonance signals detected is obtained by repeating the first pulse sequence as the reference projection~~ according to claim 6, wherein the controller is programmed to control repeating said (2) to said (4).

4. (Original) The inspection apparatus using nuclear magnetic resonance according to claim 3, wherein in said (3), said controller monitors said motion based on comparison of a value of said similarity coefficient with a predetermined threshold value.

5. (Currently Amended) ~~An~~ The inspection apparatus using nuclear magnetic resonance ~~comprising a controller controlling a pulse sequence applying a radiofrequency magnetic field and a magnetic field gradient to a living body placed in a static magnetic field to detect a nuclear magnetic resonance signal produced from said living body and an arithmetic processor using said detected nuclear magnetic resonance signal to perform image reconstruction of an imaging section, wherein said controller performs (1) in the state that said living body stops exhalation or inspiration, control of a first pulse sequence detecting said nuclear magnetic resonance signal; (2) in the state that said living body breathes, control of executing once said first pulse sequence; (3) in the state that said living body breathes, control of repeating a second~~

~~pulse sequence detecting said nuclear magnetic resonance signal at predetermined repetition time intervals; and (4) control of repeating said (2) to said (3), said arithmetic processor performs (a) arithmetic processing of acquiring a reference projection of said imaging section from said nuclear magnetic resonance signal detected in said first pulse sequence of said (1); (b) arithmetic processing of acquiring a projection of said imaging section from said nuclear magnetic resonance signal detected in said first pulse sequence of said (2); and (c) arithmetic processing of determining a similarity coefficient between said projection and said reference projection, said similarity coefficient being scalar, and said controller performs (5) control of collecting said nuclear magnetic resonance signals used for said image reconstruction in said second pulse sequence based on comparison of a value of said similarity coefficient with a predetermined threshold value;~~

~~wherein said projection is one-dimensional, and said reference projection is one-dimensional, and~~

~~wherein an average of projections of the imaging section acquired from the nuclear magnetic resonance signals detected is obtained by repeating the first pulse sequence as the reference projection~~according to claim 6, wherein said controller is programmed to control repeating of said (2) to said (3), and collecting of said nuclear magnetic resonance signals used for said image reconstruction in said second pulse sequence based on comparison of a value of said similarity coefficient with a predetermined threshold value.

6. (Currently Amended) An inspection apparatus using nuclear magnetic resonance comprising a controller controlling a pulse sequence applying a radiofrequency magnetic field and a magnetic field gradient to a living body placed in

a static magnetic field to detect a nuclear magnetic resonance signal produced from said living body and an arithmetic processor using said detected nuclear magnetic resonance signal to perform image reconstruction of an imaging section, wherein said controller performs (1) in the state that said living body stops exhalation or inspiration, control of a first pulse sequence detecting said nuclear magnetic resonance signal; (2) in the state that said living body breathes, control of executing once said first pulse sequence; and (3) control of repeating a second pulse sequence detecting said nuclear magnetic resonance signal at predetermined repetition time intervals, said arithmetic processor performs (a) arithmetic processing of acquiring a reference projection of said imaging section from said nuclear magnetic resonance signal detected in said first pulse sequence of said (1); (b) arithmetic processing of acquiring a projection of said imaging section from said nuclear magnetic resonance signal detected in said first pulse sequence of said (2); and (c) arithmetic processing of determining a similarity coefficient between said projection and said reference projection, said similarity coefficient being scalar, and said controller performs (4) control of collecting said nuclear magnetic resonance signals used for said image reconstruction in said second pulse sequence based on said similarity coefficient;

wherein said projection is one-dimensional, and said reference projection is one-dimensional, and

wherein said controller is programmed to apply an average of projections of the imaging section acquired from the nuclear magnetic resonance signals detected ~~is obtained~~ by repeating the first pulse sequence as the reference projection.

7. (Currently Amended) ~~An~~ The inspection apparatus using nuclear magnetic resonance ~~comprising a controller controlling a pulse sequence applying a~~

~~radiofrequency magnetic field and a magnetic field gradient to a living body placed in a static magnetic field to detect a nuclear magnetic resonance signal produced from said living body and an arithmetic processor using said detected nuclear magnetic resonance signal to perform image reconstruction of an imaging section,~~according to claim 6, ~~wherein~~ wherein:

said controller performs (1a) in the state that said living body stops exhalation, control of a first pulse sequence detecting said nuclear magnetic resonance signal; ~~(2) in the state that said living body breathes, control of executing once said first pulse sequence; and (3) control of repeating a second pulse sequence detecting said nuclear magnetic resonance signal at predetermined repetition time intervals,~~ said arithmetic processor performs (a) arithmetic processing of acquiring a reference projection of said imaging section from said nuclear magnetic resonance signal detected in said first pulse sequence of said (1a); ~~(b) arithmetic processing of acquiring a projection of said imaging section from said nuclear magnetic resonance signal detected in said first pulse sequence of said (2); and (c) arithmetic processing of determining a similarity coefficient between said projection and said reference projection, said similarity coefficient being scalar,~~ and

said controller performs (4) control of collecting said nuclear magnetic resonance signals used for said image reconstruction in said second pulse sequence when a value of said similarity coefficient is larger than a predetermined threshold value~~;~~

~~wherein said projection is one-dimensional, and said reference projection is one-dimensional, and~~

~~wherein an average of projections of the imaging section acquired from the nuclear magnetic resonance signals detected is obtained by repeating the first pulse sequence as the reference projection~~.

8. – 9. (Cancelled).

10. (Original) The inspection apparatus using nuclear magnetic resonance according to claim 7, wherein between control of said (1a) and control of said (2), said controller performs (1b) in the state that said living body breathes, control of repeating said first pulse sequence at said predetermined repetition time intervals, and said arithmetic processor performs arithmetic processing of determining frequency of appearance of said similarity coefficient between a projection of said imaging section acquired from said nuclear magnetic resonance signals detected by repeating said first pulse sequence of said (1b) and said reference projection and decides, as said predetermined threshold value, said similarity coefficient in which the sum of said frequency of appearance in a part in which said similarity frequency is close to 1 is 1/m of the sum of said frequency of appearance where m is a positive number of 3 or above.

11. (Currently Amended) ~~An~~ The inspection apparatus using nuclear magnetic resonance ~~comprising a controller controlling a pulse sequence applying a radiofrequency magnetic field and a magnetic field gradient to a living body placed in a static magnetic field to detect a nuclear magnetic resonance signal produced from said living body and an arithmetic processor using said detected nuclear magnetic~~

~~resonance signal to perform image reconstruction of an imaging section,~~according to claim 6, ~~wherein~~ wherein:

said controller performs (1) in the state that said living body stops exhalation, control of a first pulse sequence detecting said nuclear magnetic resonance signal;

said controller performs (2) in the state that said living body breathes, control of repeating said first pulse sequence at predetermined repetition time intervals; (3) in the state that said living body breathes, control of executing once said first pulse sequence; ~~(4) control of repeating a second pulse sequence detecting said nuclear magnetic resonance signal at said predetermined repetition time intervals; and~~

said controller performs (5) control of repeating said (3) to said (4),

said arithmetic processor performs ~~(a) arithmetic processing of acquiring a reference projection of said imaging section from said nuclear magnetic resonance signal detected in said first pulse sequence of said (1); (b) arithmetic processing of acquiring a projection of said imaging section from said nuclear magnetic resonance signal detected in said first pulse sequence of said (2); (c) arithmetic processing of determining a similarity coefficient between said projection and said reference projection, said similarity coefficient being scalar; and~~ (d) arithmetic processing of determining a predetermined threshold value from frequency of appearance of said similarity ~~coefficient,~~coefficient; and

said controller performs (6) control of collecting said nuclear magnetic resonance signals used for said image reconstruction in said second pulse sequence when a value of said similarity coefficient is larger than said predetermined threshold value~~;~~

~~wherein said projection is one-dimensional, and said reference projection is one-dimensional, and~~

~~wherein an average of projections of the imaging section acquired from the nuclear magnetic resonance signals detected is obtained by repeating the first pulse sequence as the reference projection~~.

12. (Original) The inspection apparatus using nuclear magnetic resonance according to claim 11, wherein said similarity coefficient in which the sum of said frequency of appearance in a part in which said similarity frequency is close to 1 is 1/m of the sum of said frequency of appearance where m is a positive number of 3 or above is decided as said predetermined threshold value.

13. (Currently Amended) An inspection apparatus using nuclear magnetic resonance comprising a controller controlling a pulse sequence applying a radiofrequency magnetic field and a magnetic field gradient to a living body placed in a static magnetic field to detect a nuclear magnetic resonance signal produced from said living body and an arithmetic processor using said detected nuclear magnetic resonance signal to perform image reconstruction of an imaging section, wherein said controller performs (1) in the state that said living body stops exhalation, control of executing a first pulse sequence having a first time section applying, to said living body, a slice select magnetic field gradient having a positive polarity and a radiofrequency magnetic field, a second time section applying, to said living body, a readout magnetic field gradient having a negative polarity, a third time section detecting said nuclear magnetic resonance signal in the state of applying said readout magnetic field gradient having a positive polarity, and a fourth time section applying, to said living body, said readout magnetic field gradient having a negative polarity; (2) in the state that said living body breathes, control of executing once said first pulse

sequence; (3) in the state that the living body breathes, control of executing, after said first pulse sequence of said (2), a second pulse sequence repeating, at predetermined repetition time intervals, a pulse sequence having a fifth time section applying, to said living body, said slice select magnetic field gradient having a positive polarity and said radiofrequency magnetic field, a sixth time section applying, to said living body, respective magnetic field gradients of a phase-encoding magnetic field gradient and a readout magnetic field gradient having a negative polarity, a seventh time section detecting said nuclear magnetic resonance signal in the state of applying said readout magnetic field gradient having a positive polarity, and an eighth time section applying, to said living body, said phase-encoding magnetic field gradient having the opposite polarity of the polarity of said phase-encoding magnetic field gradient applied in said second time section and said readout magnetic field gradient having a negative polarity, by changing the magnitude of said phase-encoding magnetic field gradient; and (4) control of repeating said (2) to said (3), said arithmetic processor performs (a) arithmetic processing of one–dimensional inverse Fourier transforming said nuclear magnetic resonance signal detected in said first pulse sequence of said (1) to acquire a reference projection of said imaging section in the direction applying said readout magnetic field gradient of said imaging section; (b) arithmetic processing of one–dimensional inverse Fourier transforming said nuclear magnetic resonance signal detected in said first pulse sequence of said (2) to acquire a projection in the direction applying said readout magnetic field gradient of said imaging section; and (c) arithmetic processing of determining a similarity coefficient between said projection and said reference projection, said similarity coefficient being scalar, and said controller performs (5) control of collecting said nuclear magnetic resonance signals used for said image reconstruction in said second pulse sequence based on

comparison of a value of said similarity coefficient with a predetermined threshold value;

wherein said controller performs control of repeating said first pulse sequence of said (1) at said predetermined repetition time intervals, and said arithmetic processor obtains an average of projections of said imaging section acquired from said nuclear magnetic resonance signals detected by repeating said first pulse sequence of said (1), as said reference projection

wherein said projection is one-dimensional, and said reference projection is one-dimensional, and

wherein ~~an~~ said controller is programmed to apply the average of projections of the imaging section acquired from the nuclear magnetic resonance signals ~~detected is obtained by repeating the first pulse sequence as the reference projection~~.

14. (Original) The inspection apparatus using nuclear magnetic resonance according to claim 13, wherein said controller performs control of collecting said nuclear magnetic resonance signals used for said image reconstruction in said second pulse sequence when a value of said similarity coefficient is larger than a predetermined threshold value.

15. (Original) The inspection apparatus using nuclear magnetic resonance according to claim 13, wherein said arithmetic processor performs arithmetic processing of determining frequency of appearance of said similarity coefficient and decides, as said predetermined threshold value, said similarity coefficient in which the sum of said frequency of appearance in a part in which said similarity frequency is

close to 1 is 1/m of the sum of said frequency of appearance where m is a positive number of 3 or above.

16 - 21. (Cancelled).

22. (Previously Presented) The inspection apparatus using nuclear magnetic resonance according to claim 1, wherein a moving average of linear correlation coefficients is acquired as the similarity coefficient.

23. (Previously Presented) The inspection apparatus using nuclear magnetic resonance according to claim 13, wherein a moving average of linear correlation coefficients is acquired as the similarity coefficient.

24. (New) The inspection apparatus using nuclear magnetic resonance according to claim 13, wherein the arithmetic processor calculates a moving average of the similarity coefficients.

25. (New) The inspection apparatus using nuclear magnetic resonance according to claim 6, wherein the arithmetic processor calculates a moving average of the similarity coefficients.